

Effectiveness of Implementing Occupational Nutrition for Government Agency Employees' in Jambi City

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Track Record Article

Accepted: 24 October 2023
Revised: 16 November 2023
Published: 15 December 2023

How to cite :
Aswin, B., Ibnu, Nurwaqiah, I., & Reskiaddin, Ode, L. (2023). Effectiveness of Implementing Occupational Nutrition for Government Agency Employees' in Jambi City. *Contagion: Scientific Periodical Journal of Public Health and Coastal Health*, 5(4), 1226–1237.
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Abstract

Fulfillment of nutrition for workers can affect their level of health and work productivity. If nutritional needs are not met, it can have negative impacts on the body, such as work fatigue, decreased productivity, and decreased concentration. Aims of this study is to analyze the effectiveness of the implementation of work nutrition among government agency employees' in Jambi City. This research was conducted in Jambi City, especially at the Jambi City Public Works and Spatial Planning Service and the Jambi City Manpower, Cooperatives, and SMEs Service, which took place in April–October 2023 with a sample size of 58 respondents. Data were analyzed using the Mann-Whitney test with α = 0.05. There were two intervention groups; the first group underwent intervention by providing occupational nutrition modules and mobile phone intervention, while group 2 was the control group. he results of the analysis showed no difference in diet (p = 0.926) or physical activity (p = 0.243) between intervention group and control group employees'. There were differences in safety behavior (p = 0.037), attitudes (p = 0.018), and motivation related to occupational nutrition (p = <0.001) between intervention group employees' and control groups of government agency employees' in Jambi City. In conclusion, the occupational nutrition package was not effective in improving the diet and physical activity of employees'. The work nutrition package is effective in improving knowledge, safety behavior, attitudes, and motivation related to work nutrition among employees' of government agencies in Jambi City.

Keyword : Effectiveness, Government Employees', Job Nutrition

INTRODUCTION

Many factors can affect labor market efficiency, one of which is the level of labor productivity(Kementerian Ketenagakerjaan RI, 2016). Labor productivity can be influenced by worker conditions, including worker health. Workplace Safety and Health reported that the most common occupational diseases in 2021 were Musculoskeletal Disorders with 328 cases and noise-induced deafness with 110 cases(*Workplace Safety and Health Report*, 2020). Workers are at risk of health problems caused by the work process, the work environment, and worker health behavior (Kemenkes RI, 2016). Based on the Workplace Safety and Health Report data, it is known that there was an increase in the incidence of occupational diseases from 14.8 per 100,000 workers in 2019 to 16 per 100,000 workers(*Workplace Safety and Health Report*, 2020).

Based on 2019 data from the International Labor Organization (ILO), indicates that approximately 32% of workers worldwide experience burnout due to their work. According to Level, complaints of severe fatigue among workers worldwide range from 18,3 to 27%, and

the prevalence of fatigue in industry is 45%. A work accident is currently occurring 60% of deaths occur in agriculture, construction, transportation, fishing, forestry, and warehousing(Boekoesoe et al., 2021). In 2020, the data on accidents to workers in Indonesia has increased compared to the previous year, namely 177,000 cases of accidents. previous year, namely 177,000 cases of accidents (Alfikri et al., 2021). In Indonesia, there is a health development policy as stated in the SDGs (Sustainable Development Goals) aimed at realizing optimal public health status, including for the labor community(Kesehatan et al., 2020).

Occupational diseases do not only occur in the industrial sector, but workers in the government sector also have a high risk of occupational diseases, both infectious and non-communicable diseases. In Jambi City, many government employees' suffer from Metabolic Syndrome (Guspianto, Nurwaqiah Ibnu I, 2022). The 2018 Basic Health Research conducted by the Agency for Health Research and Development calculated the prevalence or proportion of several behaviors related to metabolic syndrome such as physical activity, smoking, fruit/vegetable consumption, alcohol consumption. The incidence of metabolic syndrome can also be caused by the influence of the work environment such as workload and work stress (Kemenkes RI, 2019). Workers need adequate nutritional intake according to the level of work they do. The nutritional needs of the food that workers need to consume will increase as their workload increases(Yuniarti, Elyana Mafticha & Dwi Helynarti Syurandhari, Arief Fardiansyah, 2023). Carbohydrates, in particular, are the main nutrients required by the workforce to provide energy. In addition, they also need protein and fat. If carbohydrates are lacking, it can reduce work energy and productivity. If carbohydrates are insufficient, the body uses carbon from protein for energy(Melani et al., 2022).

Occupational nutrition is a promotive and preventive effort to improve health status and work productivity. Health and work are inseparable. One of these is to enhance labor nutrition according to each worker's nutritional status and workload, in order to improve work efficiency and productivity(Ramadhanti, 2020). In addition to poor or inadequate nutritional status, employee nutritional intake is also an important factor in achieving desired work productivity(Stitapajna & Aslam, 2020). The implementation of work nutrition is a rational investment for improving the quality of the workforce. The fulfillment of work nutrition needs is through the provision of food with calories that are adjusted to the needs of workers. The important role of nutrition in the workforce is to increase productivity, and therefore, it is used as an improvement measure in the aspect of occupational health. If the calorie needs cannot be met, it will have adverse effects on the body such as fatigue, decreased productivity, and lack of concentration (Farhati UL, 2021)(Ramadhanti, 2020)(Fao & Consultation, 2005). Increasing

worker productivity can be influenced by several things, one of which is that it can be influenced by intake Factors that can affect increasing worker productivity include certain aspects, one of which is the influence of individual nutrient intake of a nutritional agent (Parinduri et al., 2021).

The results of research by Guspianto et al (2022) related to metabolic syndrome in government employees' in the city of Jambi with a sample size of 108 respondents found that the prevalence of metabolic syndrome in government employees' in the city of Jambi was 60.2%. Factors associated with the incidence of metabolic syndrome are diet and physical activity. The results of statistical tests that there is a relationship between diet and physical activity with the incidence of Metabolic Syndrome in employees' of the State Civil Apparatus (ASN) of Jambi City. Grimani's research (2019) can say that nutritional interventions and physical activity in the workplace can increase work productivity, and work performance, and reduce absenteeism. Ratna's (2020) research with 52 samples also found the effect of work nutrition interventions through supplementary feeding and stretching on the level of work fatigue and musculoskeletal disorders in workers.

Based on preliminary study observations that have been made through observations of government employees' related to work nutrition problems, it can be seen from the many demands of work that must be completed, large physical and mental workloads, and even high work stress problems. With the implementation of good work nutrition, occupational health and safety in government employees' can be minimized. This is supported by (Anah Silmih Bakri et al., 2021) research that showing there is a relationship between nutritional status and work productivity. Research by (Shafitra et al., 2020) also shows that there is a link between nutritional status and productivity. This is also supported by the study of (Khasanah et al., 2023), there is relationship between calorie intake and employee labor productivity. In this study, an intervention on the implementation of work nutrition for government employees' will be conducted. Through interviews assisted by a questionnaire measuring tool to 3 employees' of the Ministry of Manpower, they experienced several health problems due to daily work such as fatigue, back pain, headaches, stiffness in the shoulders, fatigue in all bodies, body shaking, and feeling sleepy while working. These employees' also said that irregular workloads, high task demands, and disproportionate workloads caused them to experience a decrease in work productivity. With the intervention of work nutrition implementation, the problem of occupational health disorders can be minimized. Based on the description of the problems above, it is very important to carry out nutritional interventions for workers so that researchers

are interested in examining the effectiveness of the implementation of work nutrition in government agency employees' in Jambi City.

METHODS

This type of research is quantitative, with a quasi-experimental design, namely the intervention group and the control group. Statistical analysis using Mann-Whitney test at 95% confidence level ($p<0.05$) using SPSS analysis tools. The research population was ASN employees' at the PUPR Service and state civil apparatus employees' at the Jambi City Manpower, Cooperatives, and MSMEs Department, which took place in April–October 2023. In this study using the experimental formula to find samples. With sample selection criteria divided into inclusion and exclusion criteria. The inclusion criteria are employees of the state civil apparatus and workers whose work period is above 2 years. For exclusion criteria in this study, namely new employees and employees who are running a diet program. So that the total sample in this study was 58 respondents who were divided into 29 respondents of state civil apparatus employees at the Jambi City PUPR Office as an intervention group and 29 respondents of state civil apparatus employees at the Jambi City Manpower, Cooperatives and MSMEs Office plus Jambi City PUPR Office employees as a control group.The intervention provided is a nutrition package in the form of a work nutrition module and mobile phone intervention which is carried out in the form of employee consultations on problems related to work nutrition as well as Android-based meal plans and the intervention was carried out for 2 months.

RESULTS

Univariate Data

The following are the research results obtained after conducting research, especially regarding the effectiveness of implementing occupational nutrition for government agency employees' in the city of Jambi. The research sample consisted of two groups, namely the intervention group who were given a work nutrition package, namely employees' of the Jambi City Public Works and Spatial Planning Service, and the control group, which were employees' of the Jambi City Manpower, Cooperatives, and SMEs Service plus employees' of the PUPR Service who were not given a work nutrition package.

Table 1. Age, Gender and BMI Distribution of Government Agency Employees' in Jambi City

	Intervention		Control	
Age	**(n)**	**(%)**	**(n)**	**(%)**
Less Risky (< 35 years old)	19	65,5	15	51,7
At Risk (≥ 35 years old)	10	34,5	14	48,3
Gender				
Male	13	44,8	16	55,2
Female	16	55,2	13	44,8
BMI				
Normal	19	65,5	18	62,1
Abnormal	10	34,5	11	37,9
Total	29	100	29	100

Table 1 is a table display of the ages of two groups of employees', namely those who are given a work nutrition package and those who are not given a work nutrition package. For the group that was given a work nutrition package, the majority of employees' were less at risk, namely < 35 years old, namely 19 people (65.5%). For the group that was not given a work nutrition package, the employees' who were most at risk were less than 35 years old, namely 14 people (48.3%). The gender for the group that was given a work nutrition package, the majority of employees' were female, namely 16 people (55.2%). For the group that was not provided with a work nutrition package, the majority of employees' were male, namely 16 people (55.2%). The BMI (nutritional status) for the group given the work nutrition package, the largest number of employees' had a normal BMI, namely 19 people (65.5%). For the group that was not given a work nutrition package, the largest number of employees' also had a normal BMI, namely 18 people (62.1%).

Table 2. Distribution of Dietary Patterns, Physical Activity, Safety Behavior, Behavior, and Motivation of Government Agency Employees' in Jambi City

	Intervention		Control	
Dietary Habit	**(n)**	**(%)**	**(n)**	**(%)**
Good	16	55,2	15	51,7
Deficient	13	44,8	14	48,3
Physical Activity	**(n)**	**(%)**	**(n)**	**(%)**
Light	15	51,7	11	37,9
Moderate	12	41,4	14	48,3
Heavy	2	6,9	4	13,8
Safety Behavior	**(n)**	**(%)**	**(n)**	**(%)**
Good	18	62,1	14	48,3
Poor	11	37,9	15	51,7
Behavior	**(n)**	**(%)**	**(n)**	**(%)**
Good	16	55,2	13	44,8
Poor	13	44,8	16	55,2
Motivation	**(n)**	**(%)**	**(n)**	**(%)**
Good	15	51,7	12	41,4
Lack	14	48,3	17	58,6

Table 2 is a table display of the dietary patterns, physical activity, safety behavior, behavior, and motivation of two groups of employees', namely those who are given a work nutrition package and those who are not given a work nutrition package. For the group that was given a work nutrition package, the majority of employees' had a good diet, namely 16 people (55.2%). For the group that was not given a work nutrition package, the majority of employees' also had a good diet, namely 15 people (51.7%). For the physical activity, the group was given the work nutrition package, the most employees' with light physical activity were 15 people (51.7%). For the group that was not given a work nutrition package, the largest number of employees' with moderate physical activity was 14 people (48.3%).

For the safety Behavior, the group given the work nutrition package, the most employees' with good Safety Behavior related to work nutrition were 18 people (62.1%). For the group that was not given a work nutrition package, the most employees' with poor Safety Behavior was 15 people (51.7%). For the attitudes related to work nutrition, the group was given the work nutrition package, the most employees' with good behavior regarding work nutrition were 16 people (55.2%). For the group that was not given a work nutrition package, the most employees' with poor behavior was 16 people (55.2%).

For the motivational attitudes related to work nutrition, for the group given the work nutrition package, the most employees' with good motivation regarding work nutrition were 15 people (51.7%). For the group that was not given a work nutrition package, the most employees' with less motivation were 17 people (58.6%).

Bivariate Data

The results of the bivariate analysis in this study are as follows:

	Variable	n	Median (minimum-maximum)	Average±s.b	Significance
1.	**Dietary Habit**				
	Given a Work Nutrition Package	29	3,0 (2,0-6,0)	3,67±1,397	0,926
	No-Work Nutrition Package	29	6,0 (5,0-22,0)	8,13±4,486	
2.	**Physical Activity**				
	Given a Work Nutrition Package	29	3,0 (2,0-6,0)	3,67±1,397	0,243
	No-Work Nutrition Package	29	6,0 (5,0-22,0)	8,13±4,486	
3	***Safety Behavior***				
	Given a Work Nutrition Package	29	3,0 (2,0-6,0)	3,67±1,397	0,037
	No-Work Nutrition Package	29	6,0 (5,0-22,0)	8,13±4,486	
4.	**Behavior**				
	Given a Work Nutrition Package	29	3,0 (2,0-6,0)	3,67±1,397	
	No-Work Nutrition Package	29	6,0 (5,0-22,0)	8,13±4,486	0,018
5.	**Motivation**				
	Given a Work Nutrition Package	29	3,0 (2,0-6,0)	3,67±1,397	<0,001
	No-Work Nutrition Package	29	6,0 (5,0-22,0)	8,13±4,486	

The results of the analysis (Mann-Whitney test) for eating patterns obtained a p-value = 0.926, which is greater than alpha 0.05, which means there is no difference in eating patterns between employees' in the intervention group and the control group or the work nutrition package has not been effective in improving employees'' eating patterns. The test results for physical activity obtained a value of p = 0.243, which is still greater than alpha 0.05, which means there is no difference in physical activity between employees' in the intervention group and the control group or the work nutrition package has not been effective in improving employee physical activity.

The test results for safety behavior obtained a value of p = 0.037, which is still smaller than alpha 0.05, which means that there is a difference in safety behavior between employees' in the intervention group and the control group or that the work nutrition package is effective in increasing safety behavior related to work nutrition in employees'. The test results for attitudes related to work nutrition obtained a value of p = 0.018, which is still smaller than alpha 0.05, which means that there are differences in attitudes related to work nutrition in the intervention group and control group employees' or that the work nutrition package is effective in improving attitudes related to work nutrition in employees'.

The test results for motivation related to work nutrition obtained a value of p = <0.001, which is still smaller than alpha 0.05, which means there is a difference in motivation related to work nutrition in the intervention group and control group employees' or the work nutrition package is effective in increasing motivation related to work nutrition in agency employees'' government in Jambi City.

DISCUSSION

In terms of the eating patterns of employees' in the intervention group and control group, the results of the analysis (Mann-Whitney test) show that the p value is 0.926, which is greater than alpha 0.05. This indicates that there is no significant difference in eating patterns between the two groups. These results illustrate that the nutrition package provided has not been effective in improving employee eating patterns. In parallel research conducted by Suwignyo et al. (2018) entitled "The Relationship between Job Nutrition, Technology Used, and Work Motivation with the Work Productivity of Palm Oil Harvesters Pt. Agro-Industrial Synergy, Sandaran District, East Kutai Regency," results show that diet is not related to work productivity. This is due to the fact that workers who have a normal diet do not necessarily produce high work productivity. Eating patterns are influenced by other factors, such as culture, religion or belief, socio-economic status, economic factors, and socio-cultural factors such as

the level of motivation and technology used in the work process. Therefore, to improve diet, the study concluded that it is not enough to focus only on the nutritional aspects of employees'' work; it is also necessary to consider other factors that influence workers' diet (Suwignyo & Saputri, 2018).

In Sri Rahayu Utami's research (2014), there is a relationship between nutritional status and physical fitness level. According to these findings, workers must improve their work productivity by eating foods that contain balanced nutrition and regularly exercising to improve their physical fitness. Therefore, efforts to improve nutritional status and physical fitness levels need to be a concern for increasing labor productivity (Antara et al., 2014). Physical activity refers to actions that utilize energy or power to carry out various physical activities, including walking, running, exercising, and the like. The energy level required for each physical activity differs depending on the duration, intensity, and characteristics of the muscle work involved in the activity (Wicaksono, 2021). The test results for physical activity revealed that the p value was 0.243, which is still greater than the alpha set at 0.05. Thus, these results indicate that there is no significant difference in physical activity between the group of employees' who received the intervention and the control group. This also shows that the work nutrition package provided is not effective in increasing employee physical activity. The results of this research are in line with the research of Mutia Shafitra et al. (2020), the results of which were that there was no relationship between work productivity and physical activity. This is because the activities carried out on average are light, so little energy is expended and does not really affect work productivity (Shafitra et al., 2020).

The test results for safety behavior obtained a value of $p = 0.037$, which is still smaller than alpha 0.05, which means that there is a difference in safety behavior between employees' in the intervention group and the control group or that the work nutrition package is effective in increasing safety behavior related to work nutrition in employees'. These results support the hypothesis that the occupational nutrition package is effective in improving safety behavior related to aspects of occupational nutrition in employees', so that the intervention group that received the occupational nutrition package appears to have shown significant improvements in safety behavior compared to the control group. The test results have important implications in the context of companies or organizations that have occupational nutrition programs. Demonstrates that investment in occupational nutrition programs can contribute positively to employee safety behavior, which in turn can reduce the risk of workplace accidents and injuries. This is important to improve employee welfare and productivity, as well as reduce costs related to work accidents. In a similar study conducted by Nurillah Amaliah and her

colleagues in 2018, they implemented a mobile device service intervention to test its effectiveness and identify dominant factors influencing safety behavior changes. Following the intervention, significant differences were observed with p-values of < 0.01 and 0.001. The changes in safety behavior scores indicate an effective transformation in safety behavior. (Amaliah, 2018)

The test results for attitudes related to work nutrition obtained a p value of 0.018, which is still smaller than alpha 0.05, which means that the work nutrition package given to the intervention group has been effective in improving employee attitudes regarding work nutrition. These results support the initial hypothesis that the occupational nutrition intervention would have a positive impact on their attitudes. It should be noted that attitudes regarding occupational nutrition are an important aspect of understanding employee involvement in workplace health and wellness programs. A positive attitude towards occupational nutrition can motivate employees' to adopt better nutritional practices, thereby contributing to their well-being. In the study conducted by Middelweerd et al. (2014), they investigated the implementation of interventions through mobile phones as an effort to enhance engagement in physical activities. The research findings indicated behavioral changes involving the utilization of 5 behavior change techniques, ranging from 2 to 8. Some frequently employed techniques included self-monitoring, providing performance feedback, and goal-setting. (A. et al., 2014). In a similar research method, namely the provision of pocketbooks and counseling conducted by Ratri Puspitasari et al. in 2019, it was found that balanced nutritional counseling with pocketbooks had a significant impact on behavior (knowledge, attitude, and practices) (Puspitasari et al., 2019). As a result, there is a difference in work nutrition-related attitudes between the intervention group and the control group of employees', or it can be concluded that the work nutrition package is effective in improving work nutrition-related attitudes in employees'.

The test results for motivation related to work nutrition obtained a value of p = <0.001, which is still smaller than alpha 0.05, which means there is a difference in motivation related to work nutrition in the intervention group and control group employees', or the work nutrition package is effective in increasing motivation related to work nutrition in agency employees'. government in Jambi City. High motivation regarding work nutrition can have a positive impact on encouraging employees' to pay more attention to nutritional aspects in their daily lives. This can have a positive impact on their diet, health, and well-being. In the context of government agencies, high motivation regarding work nutrition can also influence how employees' promote better nutritional practices to the public. This research is in line with the

results of research by Jesica T. Sumigar et al. (2020), who found that there is a relationship between motivation and productivity in workers. High motivation related to work nutrition has very positive implications, so it can encourage employees' to pay more attention to nutritional aspects in their daily lives, including eating patterns and consuming healthier food. As a result, it can be expected that employee health and well-being may improve. This finding is also in line with the results of research by Jesica T. Sumigar and colleagues in 2020, which showed a relationship between motivation and work productivity in workers. Thus, this research provides additional evidence that good motivation, especially related to work nutrition, can have a positive impact on employee work behavior and productivity in government agencies in Jambi City (Sumigar et al., 2020).

CONCLUSIONS

Employees' who were given a work nutrition package were mostly at a normal BMI of 65.5% while employees' without a work nutrition package were also mostly at a normal BMI of 62.1%. There was no difference in the diet and physical activity of employees' in the intervention group and control group or the nutritional package was not effective in improving the diet and physical activity of employees'. There is a difference in safety behavior, attitudes and motivation between intervention group and control group employees' or the work nutrition package is effective in improving safety behavior, attitudes and motivation related to work nutrition in employees'.

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